

# CELENT

## DIGITAL STARTS WITH DATA

CREATING THE INSIGHT INFRASTRUCTURE ACROSS THE  
CAPITAL MARKETS VALUE CHAIN

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This report was commissioned by Xceptor, which asked Celent to design and execute a Celent study on its behalf. The analysis and conclusions are Celent's alone, and Xceptor had no editorial control over report contents.

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# EXECUTIVE SUMMARY

## KEY RESEARCH QUESTIONS

- 1** *What do capital markets firms want from their data?*
- 2** *What are the benefits of data centrality in the front, middle, and back office?*
- 3** *What does the capital markets data journey look like?*

For participants in the capital markets, the digital journey has been a source of opportunity and obstacles. If we look back over the last several years, there are lessons to be learned to create a journey that drives innovation and ROI. One of the most effective paths to realizing these benefits is centered around approaches to data.

In this report, Celent focuses on the value of becoming a data-driven firm, across the capital markets value chain: a process that is never-ending and never gets easier, but is mandatory for developing the **insight infrastructure** to compete in the coming years.

Five of the report's key findings:

- The most effective digital transformation projects in capital markets firms emerge from data transformation projects.
- The highest value projects are driven by laser focus on the needs of the business, and ease in which senior management allows access to disparate groups and data.
- Properly designed, data transformation projects create a data platform and become essential to a variety of types of users from business leaders to data scientists, and from front office to back office.
- The process of getting data ready for a digital transformation is a key to its ultimate success.
- Electronic trading is driving increased demands for data insight across asset classes, but trade and other data break rates increase rapidly after the front office.

The report looks at the process and demands to drive better data insights for the benefit of internal and external clients in the front, middle, and back office. This research is part of Celent's ongoing coverage the digital journey in capital markets. This report was commissioned by Xceptor ([www.xceptor.com](http://www.xceptor.com)), while Celent kept full editorial control.

# INTRODUCTION

The capital markets are faced with new models for conducting business in the light of evolving regulatory challenges, operational complexity, and a rapid cycle of disruptive technologies, all with the backdrop of working in an aggressive cost-cutting environment. The challenges outlined in Figure 1 are putting the need for a competitive edge through digitalization into clear focus.

Figure 1: The Challenges That Are Driving Change in the Capital Markets



Source: Celent

These challenges have yielded major strategic drivers that put significant demands on technology, operations, and processes, as seen in Table 1.

Table 1: The Proper Responses to the Business Drivers

| STRATEGIC DRIVERS      | DEMANDS ON TECHNOLOGY, OPERATION, AND PROCESSES  |
|------------------------|--|
| Business Model Changes | <p>Faster development, deployment, time to market for new offerings, asset classes, and lines of business.</p> <p>Elastic process and operations.</p>                  |
| Reporting Requirements | <p>Rapid response to regulatory demands.</p> <p>Architected for storage, access, collection, monitoring, and reporting.</p>  |
| Cost Cutting           | <p>Automation, data-driven approach, capturing all deal flow.</p> <p>Strategically choosing among in-house build or buy; outsourcing, partnerships, mutualisation.</p> |



Source: Celent

This has resulted in a broad spectrum of capital markets firms rethinking their operating model, their use of vendor solutions, and their partnership models for their broader businesses needs as well as their data projects.

There's no one approach to achieving good data. However, getting it right defines all upstream and downstream processes.

Key  
Research  
Question

1









*What do financial capital markets firms want from their data?*

**Survival. The only capital markets firms that exist in five years will be data driven.**

## WHAT DO PEOPLE WANT WITH THEIR DATA?

In surveys, we uniformly find across a wide array of capital markets participants that their data is one of their chief concerns from a business, insight, regulatory, management, risk and financial perspective. We look at some of the demands in Figure 2.

Figure 2: Demands from Digital Projects Begin with Data

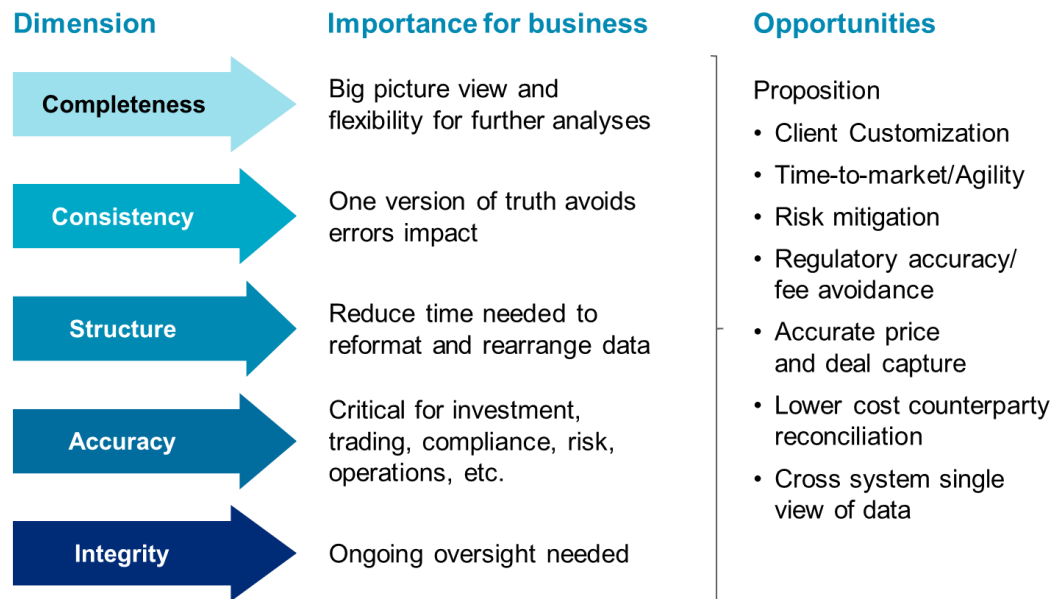
| Business Demands  |  |
|---|--|
|  Tangible and demonstrable cost savings                                  |  Internal and external client centricity  |
|  Maximizing STP rates for a given end-to-end process                     |  Standardize interfaces through API with normalization both internally/externally |
|  Simplify, standardize legacy infrastructure while maintaining agility   |  Stating at any point in the process  |
|  Dashboarding to measure productivity, root cause analysis, costs, rates |  Robust future proof technology infrastructure                                    |

Source: Celent

### A Comprehensive Process

Digital breaks when the data is incorrect. As timeframes in all aspects of the capital markets shrink — nanosecond trading; real-time risk; rapid reconciliations; daily regulatory reporting; T+1 settlements — there is less room for error. This is particularly true as we move further into machine learning and AI as a core component of the capital markets infrastructure. The holistic approach to a complete data view is shown in Figure 3 along with the opportunities created.

Figure 3: A Comprehensive Data Process Drives Business Insights and Opportunities



Source: Celent

## High ROI Digitization Projects Have Centered Around Data

Investment in data analytics is predominantly driven by ROI, with a historical bias to marketing and sales. Realizing more extensive and sustainable benefits of data analytics requires shifting the balance of investment to encompass business process transformation, typically in line with digital ambitions.

## Data Centricity Is Driving the Creation of an Insight Infrastructure

The nature of IT is being profoundly impacted by a drive for world-class data-centric capabilities. Investment and resources committed to information technology are balancing toward strengthening, extending, and enriching data insights capabilities for businesses, technology, operation, compliance, and finance. These processes allow independent insights for a variety of teams, extension of data insights across teams, and significant reduction in turnaround times for information needs.

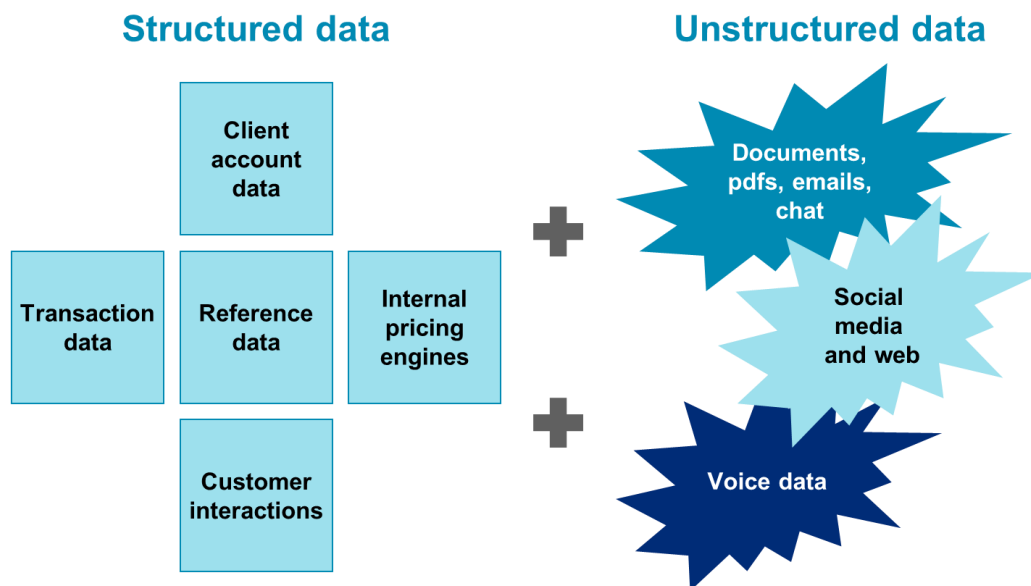
## New Thinking Is Required Around the Preparation of Data

Addressing current data quality challenges is a top priority with organizations focusing on the cleaning, rationalization, and better curation/provisioning of internal data. This also drives new ambitions to expand the complexity of data which has greater variety, velocity, and volume.

## A View into Disparate Data Silos and Types — All Data Types from All Channels

Myriad data demands and data types have driven new demands and new opportunities. Investment managers and traders want better access to managing PDFs; operations wants a single data point to drive all systems; and compliance wants to be able to have actionable access to voice and trade data for surveillance purposes.

Figure 4: The Myriad Sources and Forms of Data That Are Key in the Capital Markets



Source: Celent

**Key  
Research  
Question**

**2**

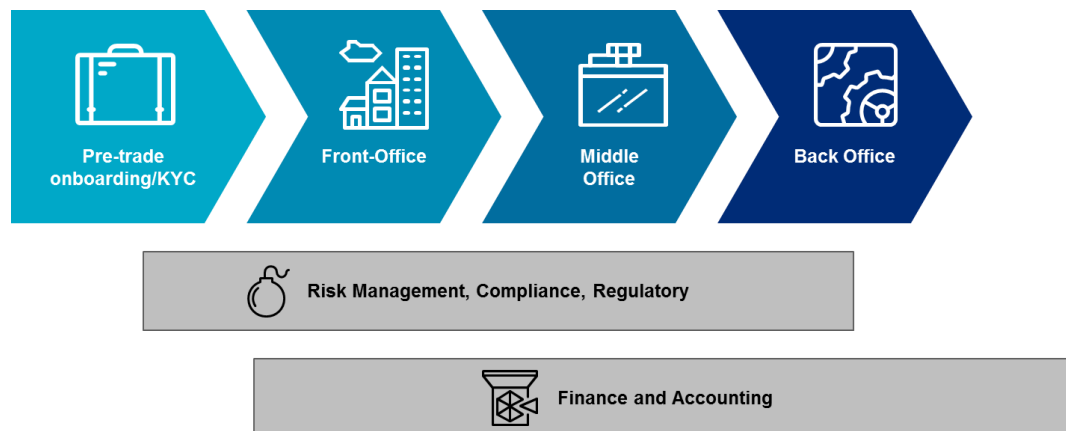
*What are the benefits of data centrality in the front, middle, and back office?*

**Most of the highest value projects that firms are investing in are coming from data transformation projects.**

The common thread that enables all the following scenarios is good data — data that is accurate, timely, fit-for-purpose, accessible, and intuitive. Anyone who has tried knows that achieving good data across the enterprise is not easy. In fact, data quality has emerged as one of the biggest and most critical challenges facing the financial services industry. How do you develop a strategic, holistic, yet pragmatic approach to achieving good data? In this report, we discuss the importance of good data, the components of an effective data strategy, and a pragmatic path to success, building on past and current efforts. Figure 5 looks at the cases.

## CAPITAL MARKETS VALUE CHAIN

Figure 5: A Data-Centered Approach to the Capital Markets Value Chain



Source: Celent

### TRADE CLIENT MANAGEMENT, ONBOARDING, KYC

The institutional client onboarding process has been a source of high costs, customer frustration, and heavy reliance on paper-based processes. High-value data projects have included data transformation for a single normalized process.

The onboarding process has been a source of regulatory, risk, and resource concern. Large firms simply automated the data preparation and reconciliation requirements, and have obviated the need for manual and spreadsheet-based processing. Projects like this have dropped onboarding times of institutional clients by 50%.



## FRONT OFFICE

Data failures are high-cost pain points in the front office which result in lost trades, incorrect details, errors, and high levels of missing information about counterparties or products. Normalization of fragmented data from hundreds of data protocols which are frequently updated is a continuous pain source in a growing number of asset classes.

Large financial institutions have between 10 and 15 reference data systems. The single reference data system for all client, currency, instrument data remains elusive, but firms are trying to create a digital reference data infrastructure that feeds the one true reference data into all downstream systems.

### Electronification of Trading

- Electronification of trading is growing across assets and driving a virtuous cycle of data production.
  - FX and fixed income desks are seeing major upgrades and require more execution tools, low latency pricing, and fragmented connectivity.
  - New demands on price capture to feed proprietary and vendor systems.
  - Financial institutions are making more buy vs. build decisions because more complicated vendor data management tools are required across legacy and vendor solutions.

Capital markets firms that have invested in data projects are seeing lower rates of missed trading opportunities, rapid responses to client enquirers, and capture of the correct trade details. These firms are seeing straight-through processing (STP) rates in their front office flows over 90% in FX spot.

The most advanced firms are leveraging their robust data to make predictive choices, driving advanced machine learning algorithms and AI, especially around the monitoring of their trading infrastructure.

## MIDDLE OFFICE

Missing trade details from the front office are a pain point that result in costly and difficult reconciliation processes. A new focus on OTC trade efficiency in an automated fashion as well as the evolution of smart contracts is driving new demands for data-generated confirmations and term sheets. ISDA and other organizations continue down the path of creating a much more data-driven and automated approach.

Data systems that flow correctly, assessing static and reference data, allow for the best trade enrichment and fastest processing.

## BACK OFFICE

Low rates of STP are endemic in the back office because heavy reliance on human processes has been the norm. As trade reconciliation, settlement, allocations, and payments utilize digital tools and firms automate these processes, large cost reductions are seen. In US equities, we have seen costs drop by 33% over the last five years as data and automation projects in these areas take hold.

### Increased Clearing

- An ever-increasing set of OTC products are being cleared, driving a much more data-driven approach that has required significant work in migration of workflows and new connectivity.
  - Automation of collateral flows between counterparties and clearing house.
  - Rapid affirmations and confirmations across the equity, FX, rates, and commodity product.

## FINANCE, RISK MANAGEMENT

Firms need to continue to ensure that their financial data, balance sheet assets, can be viewed in shorter timeframes. Projects that are giving finance a rapid, enhanced view of balance sheets are the most sophisticated. The next frontier in data projects is a unified enterprise view of risk so senior managers of financial institutions can know their true risk, capital usage, and extension of balance sheet.

**Key  
Research  
Question**

**3**

*What does the data capital markets journey look like?*

**This is a process that will define a firm's future.**

## THE DATA PROCESS: DRIVING AN INSIGHT INFRASTRUCTURE

In order to ensure the creation of an insight infrastructure, a proper data process is required. The best projects are driven by a clear definition of the problem and the solution desired. This requires a well thought out plan for accessing and leveraging existing or new data assets.

Figure 6: The Data Process



Source: Celent

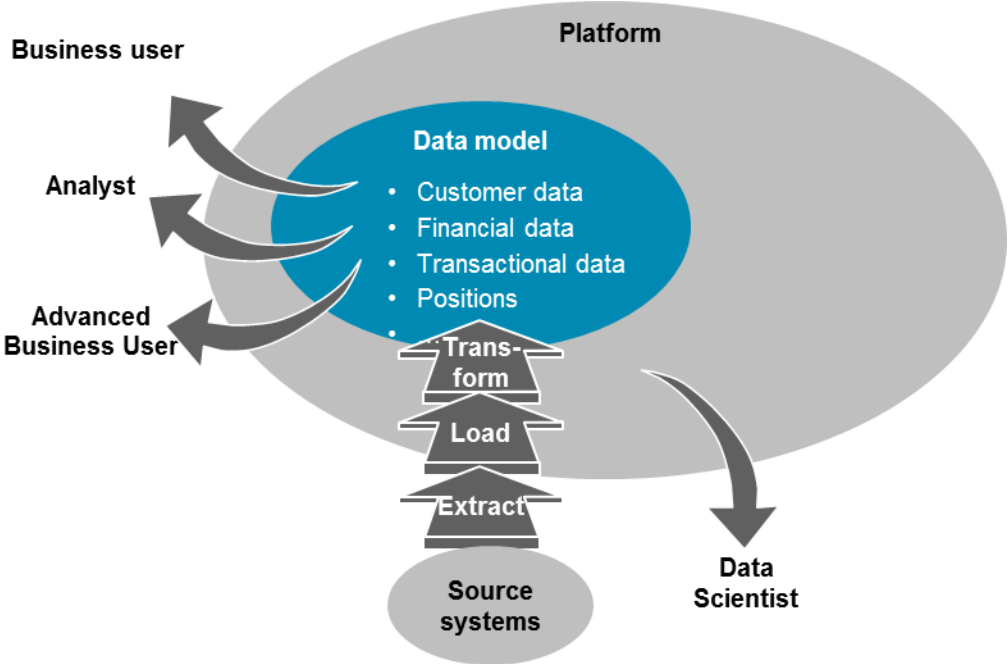
### Summary of Each Step

- **Business outcome:** The first step involves proposing what the new or refined application or process should do. This proposal would include the use case and success criteria, including suitable technical metrics for determining performance.
- **Requirements:** Disparate internal or external teams work together to identify required data, where it should come from, and how it should be obtained. Internal databases and platforms are the natural starting points. Sometimes data lakes are built for this purpose. Most data sources do provide some information on what data is contained within and metatags, though multiple systems may have to be consulted, and there can be challenges bridging the data gaps. Poor documentation and maintenance are frequently major obstacles for companies seeking to capitalise on their data.

- **Collection:** The data may come solely from within the business, or from outside sources such as a data vendor, a data aggregator, alternative data, or from a mix of these. If the business already deploys a data warehousing solution, then data engineers typically extract, transform, and load (ETL) the data into a data mart for a variety of data users. Similar processes may exist for a data lake. GDPR has increased the need for oversight on data use.
- **Exploration:** Data scientists and engineers will then check if the data is suitable for use. This will involve checking for data sufficiency, quality, gaps, and formatting. Any problems discovered at this stage may necessitate further cleaning or loading of additional data, while any trends or associations discovered can be later incorporated into the model. In some cases, new artificial data, or synthetic data, may be created to help provide a sufficiently large starting set to ensure other types of users have the data quality necessary to drive insights.
- **Transformation:** The next step is that the data needs to be cleansed before leveraging data for a new process. Missing data may be omitted or filled according to business rules, while anomalies or outliers may be corrected or removed. Techniques such as scaling, normalization, and standardization might be used to adjust for skew, while smoothing can be needed to remove noise. Feature engineering can be used to accentuate hidden variables embedded within the data.
- **Flow:** Data flows and access will need to be evaluated against the criteria stated in the first step.
- **Deployment:** Following the initial choices and preparation, developers and other business users work closely with data engineers and scientists to integrate the new process into a robust, scalable solution prior to rollout within the wider organization. To enable effective utilization, especially in larger businesses, data leads need to communicate and socialize the application more broadly with business teams.
- **Ongoing Process / Monitoring:** Applications programmed by developers require monitoring to ensure that they continue to work.

These processes define an insight infrastructure data platform (potentially a data lake) that becomes central to the creation of a centralized data platform that can be leveraged for decision or understanding of the business by business users and analysts. At the same time, advanced business users with a variety of other skill sets can leverage the platform in other more advanced ways. Similarly, the most complex needs for data by data scientists or quants can be utilized from the platform, as illustrated in Figure 7.

Figure 7: Driving Value for Multiple Users with a Data Platform



Source: Celent analysis

## FINAL WORDS

Growing digitalization of trade and client lifecycle means need for a new and scalable solution, and many financial institutions are already working on it. Accessing this data, from asset class performance to client behaviour, is a key initiative for many players.

The challenge is how to harness the data coming from different sources and formats to generate meaningful insights in the most rapid time possible. Advanced data and machine learning can only be leveraged after the data is correct and robust.

We have found financial institutions that have created an insight infrastructure have followed the following paths:

- The most effective digital transformation projects in capital markets firms emerge from data transformation projects.
- The highest value projects are driven by laser focus on the needs of the business, and ease in which senior management allows access to disparate groups and data.
- Designed properly, data transformation projects create a data platform and become essential to a variety of types of users from business leaders to data scientists, and from front office to back office.
- The process of getting data ready for a digital transformation is a key to its ultimate success.
- Electronic trading is driving increased demands for data insight across asset classes, but STP rates fall off rapidly after the front office.

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November 2017

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